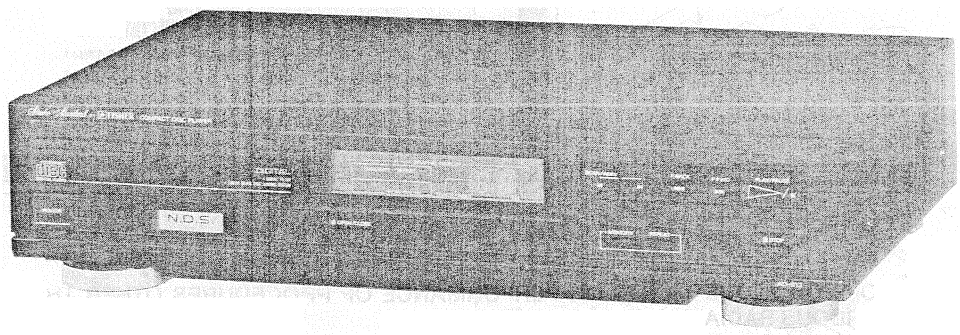
SERVICE MANUAL

FISHER

DIGITAL COMPACT DISC PLAYER

AD-913

(EUROPE)



137 343 40

SPECIFICATIONS

System ..... Compact disc digital audio system

AUDIO CHARACTERISTICS

Frequency Response ..... 20 Hz – 20 kHz
Harmonic Distortion ..... Less than 0.07 % (1 kHz)
S/N Ratio ..... More than 90 dB
Wow and Flutter ..... Below measurable limits
Channel Separation ..... More than 80 dB (1 kHz)
Output Voltage max. ..... 2 Vrms

FUNCTIONS

Instant Program Selection ..... With F-FWD and F-BACK buttons
Index Selection ..... With SCAN/INDEX ▶| and |◀ buttons (Stop mode only)
Program Functions ..... 16 selections
Repeat ..... All tracks, all programmed tracks
Program Reset ..... Press STOP button twice (during programmed disc play)
Pause ..... Each track
Disc Loading ..... Motor driven horizontal loading

DIGITAL SIGNAL PROCESSING

Optical Pickup ..... 3-beam laser
Error Correction ..... CIRC
Sampling Frequency ..... 44.1 kHz
D/A Conversion ..... 16-bit linear
Filter ..... Digital filter + (2-pole Active filter)

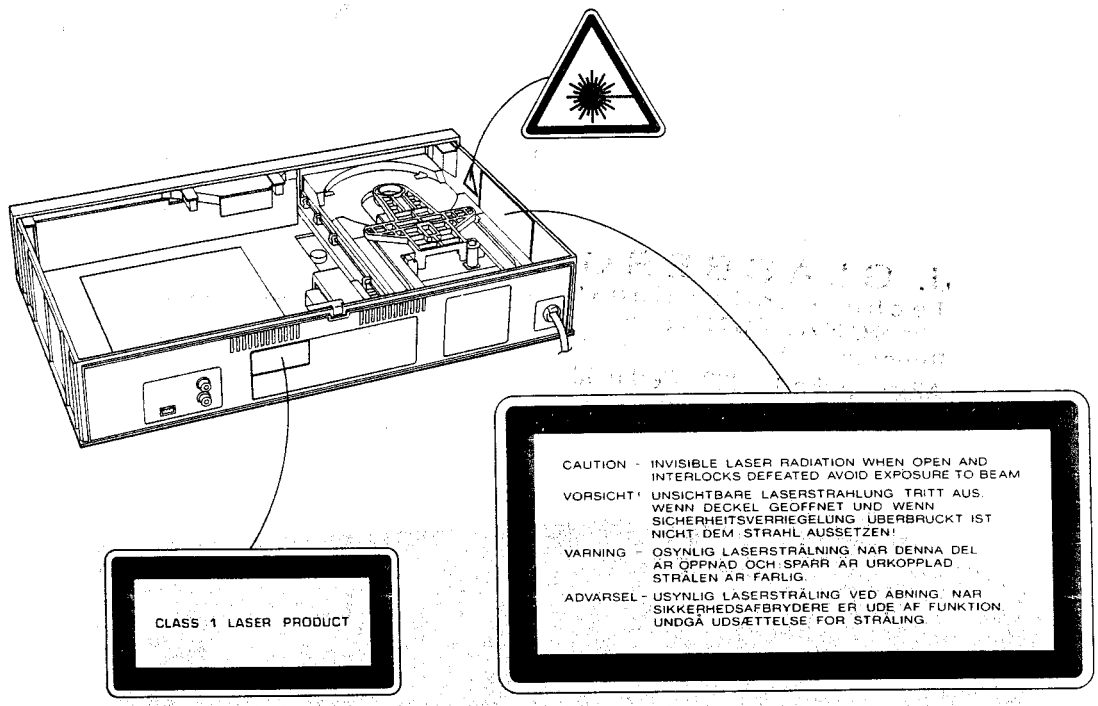
GENERAL

Power requirements ..... AC 220V (50 Hz) 20 W
Dimensions (WxHxD) ..... 440 x 100 x 265 mm
Weight (approx.) ..... 3.3 Kg

– **Specifications and design are subject to change without notice.**

REFERENCE No. WM-570090

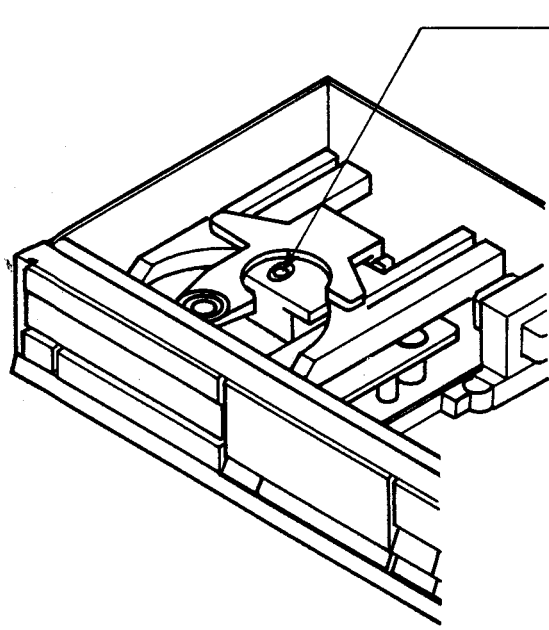
SAFETY CERTIFICATION


CLASS 1 LASER PRODUCT
CAUTION - INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED AVOID EXPOSURE TO BEAM
VORSICHT - UNSICHTBARE LASERSTRAHLUNG TRITT AUS WENN DECKEL GEOFFNET UND WENN SICHERHEITSVERRIEGELUNG UBERBRUCKT IST NICHT DEM STRAHL AUSSETZEN!
VARNING - OSYNLIG LASERSTRÅLNING NAR DENNA DEL AR OPPNAD OCH SPARR AR URKOPPLAD STRÅLEN AR FARLIG.
ADVARSEL - USYNLIG LASERSTRÅLING VED ÅBNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.

CAUTION – USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT QUALIFIED SERVICE PERSONNEL.

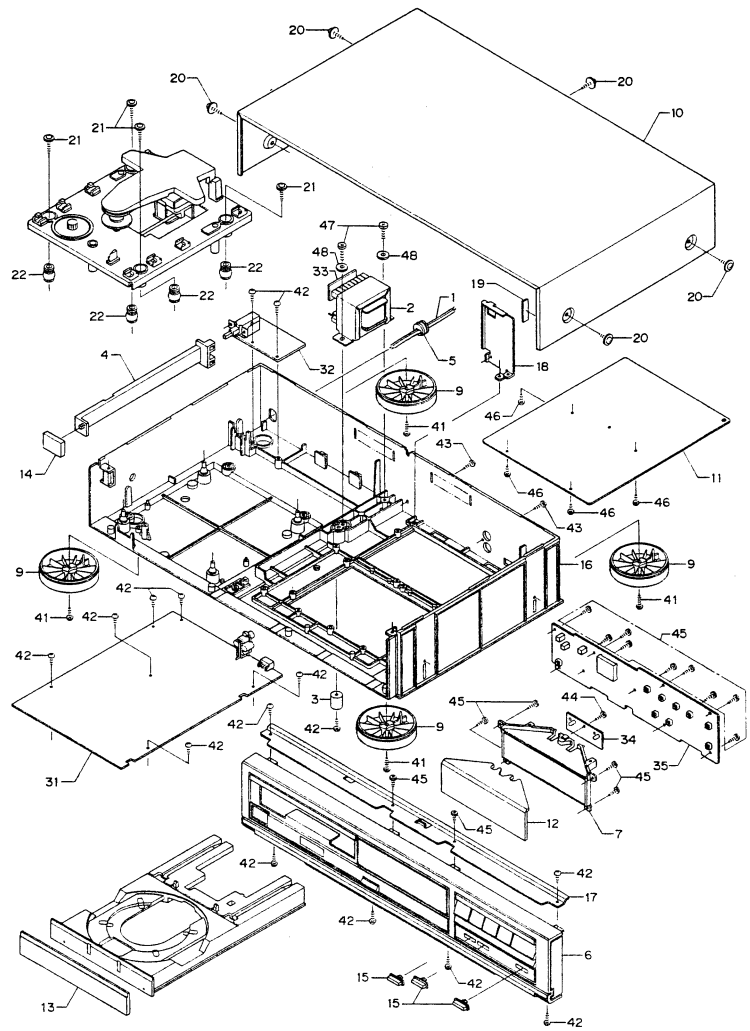
LASER BEAM RADIATION SPOT



Laser Diode Properties
Material: Ga-Al-As
Wavelength: 755 – 815 nm (25°C)
Laser Output: Continuous Wave max.0.5 mW

CABINET & CHASSIS PARTS LIST/EXPLODED VIEW

Ref. No.	Part No.	Description	Q'ty
PACKAGE			
	620 059 6596	Patching Sheet	1
	620 148 4069	Pad Left	1
	620 148 4076	Pad Right	1
	620 191 2098	Individual Carton	1
	620 148 8012	Sheet Polyethylene	1
	620 152 7452	Serial No. Sheet	2
ACCESSORIES			
	620 017 7955	Connector 4P Assy	1
	620 057 8783	Bag Fan	1
	620 150 8710	Notes	1
	620 152 2624	Certificate Card	1
	620 152 7452	Serial No. Sheet	1
	620 191 3354	Explanatory Booklet	1
	620 037 3500	RCA Cord 1000mm Black	1
	620 021 7408	RCA Cord 1000mm Black	1
CABINET			
	620 188 6191	Connector 9P Assy [CN3]	1
	620 022 3454	Terminal Lug	1
	620 191 1855	Name Plate (Rating)	1
	620 061 2340	Notes (Laser)	1
	620 061 2401	Notes (Laser)	1
	620 061 2418	Notes (Laser)	1
	620 116 4442	Adhesive Sheet	1
	620 125 8424	Wire Band	6
	620 152 7452	Serial No. Sheet	1
1 ⚠	620 023 7550	Power Cord	1
2 ⚠	620 191 9493	Power Trans	1
3	620 184 8410	Leg Trans	1
4	620 052 1376	Shaft	1
5	620 122 3798	Bushing	1
6	620 192 1663	Cabinet Front Assy	1
7	620 185 2097	Panel Holder Assy	1
9	620 185 2141	Leg Decorate Assy	4
10	620 090 8061	Cover	1
11	620 095 0855	Plate Bottom	1
12	620 184 8816	Clear Light	1
13	620 184 8885	Cover Decorate Tray	1
14	620 184 9035	Knob Power	1
15	620 184 9042	Knob Stop	3
16	620 117 1259	Chassis Cabinet	1
17	620 117 2782	Angle Reinforce	1
18	620 117 6599	Bracket Earth	1
19	620 119 6399	Spacer	1
20	620 122 9738	Screw, Bind Hd. Tapping-B, +M3.0X8	5
21	620 123 1021	Screw, Braz. Hd. Tapping-B, +M2.6X14	4
22	620 124 3437	Cushion Rubber	4
31	620 192 1670	Main P.C.B. Assy	1
32	620 192 1687	Power Switch P.C.B. Assy	1
33	620 192 1694	Power Trans P.C.B. Assy	1
34	620 192 1700	Lamp P.C.B. Assy	1
35	620 192 1717	Control P.C.B. Assy	1
41	411 020 6208	SCR S-TPG BRZ 3X12	4
42	411 020 8004	SCR S-TPG BRZ 3X8	15
43	411 099 9803	SCR S-TPG BRZ 3X8	2
44	411 021 2704	SCR S-TPG BIN 2.6X6	1
45	411 021 3107	SCR S-TPG BIN 2.6X8	15
46	411 021 5705	SCR S-TPG BIN 3X6	4
47	411 107 0402	SCR S-TPG BIN 4X14	2
48	411 093 9700	WASHER Z 4.5X12X1	2



NOTES:

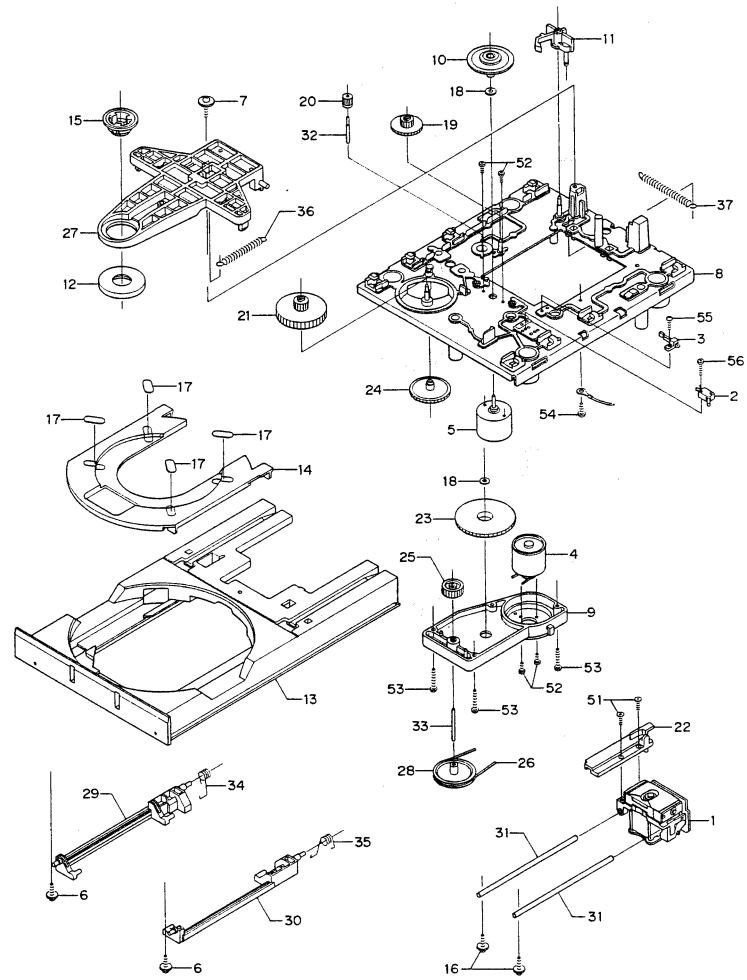
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

MECHANISM PARTS LIST/EXPLODED VIEW

Ref. No.	Part No.	Description	Q'ty
MECHANISM			
	620 125 8424	Wire Band	2
1	620 062 6170	Pick-up Assy SF-88	1
2	620 015 3744	Lever Switch 1P1T (Open) [S101]	1
3	620 016 2401	Leaf Switch (Pick-up Inner) [S102]	1
4	620 189 0426	Motor (Sled Motor) [M101]	1
5	620 189 0433	Motor (Disc Motor) [M102]	1
6	620 051 4279	Screw	2
7	620 051 4316	Screw	1
8	620 081 5963	Chassis Assy	1
9	620 185 9898	Chassis Sub Assy	1
10	620 082 7478	Turntable Assy	1
11	620 083 3974	Arm Assy	1
12	620 085 6553	Magnet Assy	1
13	620 185 9904	Table Load	1
14	620 185 9911	Table CD	1
15	620 119 1530	Holder Disc	1
16	620 123 0772	Screw Washer	2
17	620 184 9905	Pad Disc (Felt)	4
18	620 125 1487	Washer	2
19	620 127 9429	Gear Pick-up	1
20	620 127 9436	Gear Motor	1
21	620 127 9467	Gear Table Load	1
22	620 127 9474	Gear Pick-up Rack	1
23	620 185 9973	Gear Load Pick-up	1
24	620 185 9980	Gear Load T.L	1
25	620 185 9997	Gear	1
26	620 186 0009	Belt	1
27	620 129 5986	Flap Disc Cramp	1
28	620 186 0023	Pulley	1
29	620 186 0030	Lever Hold Disc Left	1
30	620 186 0047	Lever Hold Disc Right	1
31	620 133 4081	Shaft Pick-up	2
32	620 133 4098	Shaft Gear S	1
33	620 186 0054	Shaft Pulley	1
34	620 186 0061	Spring Lever Left	1
35	620 186 0078	Spring Lever Right	1
36	620 139 1558	Spring Flap Disc CR	1
37	620 139 1565	Spring Arm	1
51	411 108 0104	SCR FLT PCS 2X5	2
52	411 099 0701	SCR PAN PCS 1.7X3	4
53	411 020 5409	SCR S-TPG BRZ 2.6X14	3
54	411 020 7700	SCR S-TPG BRZ 3X6	1
55	411 022 7807	SCR S-TPG PAN 2X6	1
56	411 104 6605	SCR TPG PAN 1.7X10	1



NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

IMPORTANT NOTE

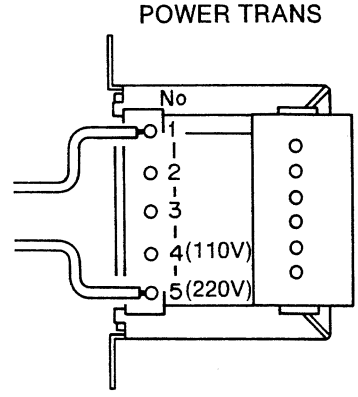
The Compact Disc Player has been Factory-adjusted for operation on 220V AC. The voltage can be change for operation on 110V AC by making the following changes on the Compact Disc Player inside.

1. Remove the AC plug from the wall outlet.
2. Disconnect White lead from Power Trans Terminal No.5, and then connect it to Power Trans Terminal No.4.

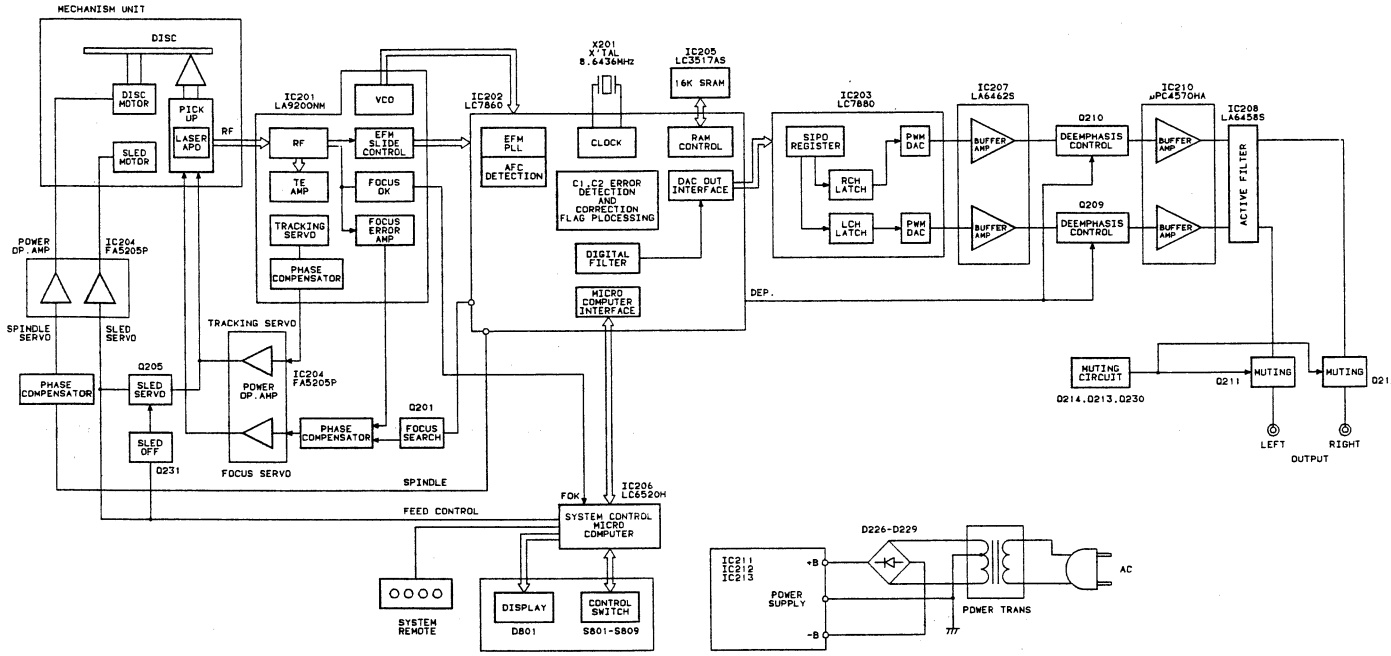
The Compact Disc Player is now ready 110V operation DO NOT attempt to operate the Compact Disc Player on 220V.

Damage will result !

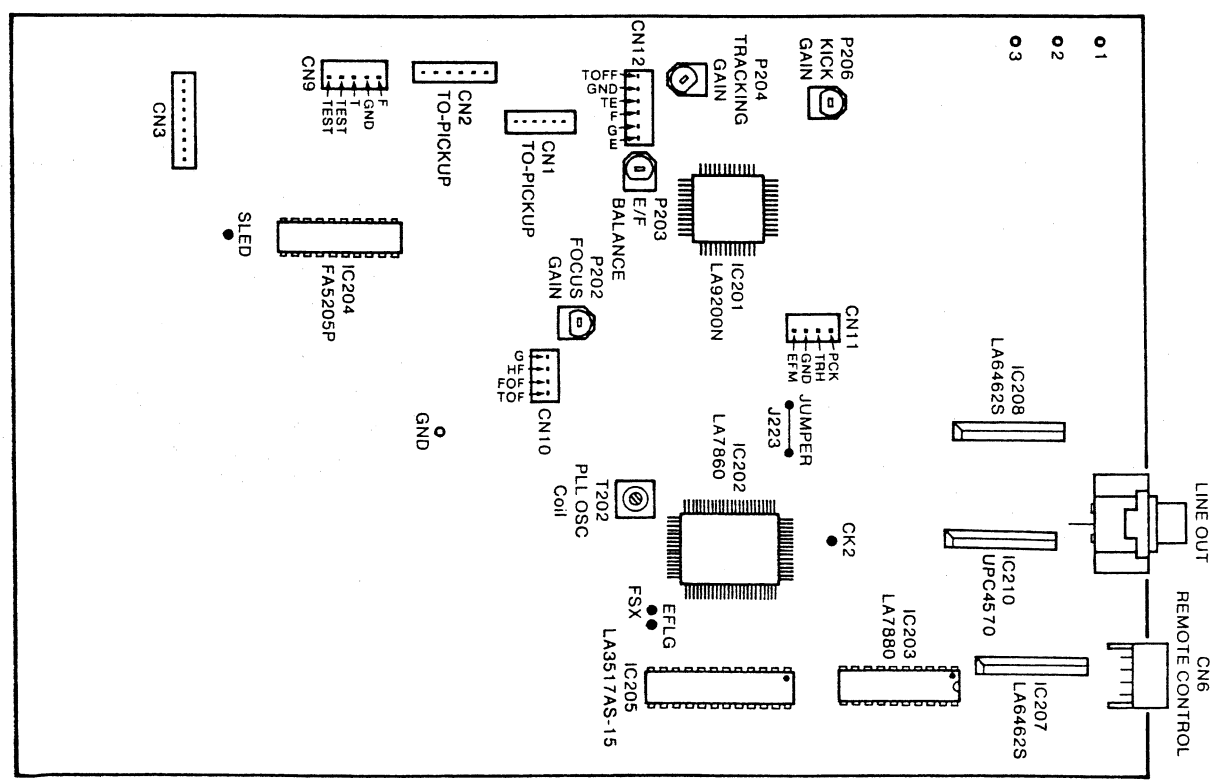
POWER TRANS



FUNCTIONAL BLOCK DIAGRAM



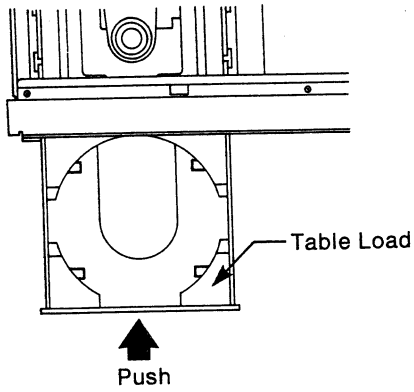
MAIN P.C.BOARD ALIGNMENT POINTS
(TOP VIEW)



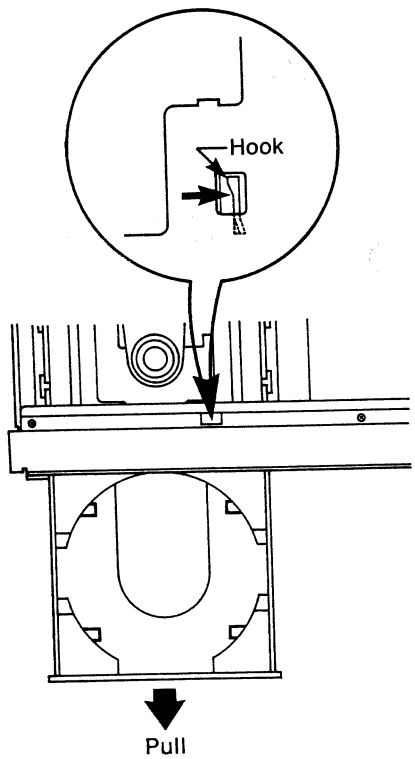
DISASSEMBLY PROCEDURES

REMOVING THE DISC TRAY

1. Apply Power Switch to the set and press the OPEN/CLOSE button to open the table load.
2. Apply OFF the Power Switch while the table load is open, and push the table load back in by hand to close it.

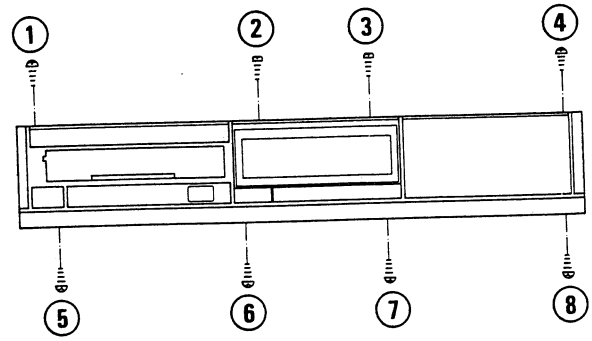


3. Pull out the table load by hand to open it again. The table load will disengage easily and come out smoothly.
4. Now remove the table load from the cabinet while pressing the tab in the direction of the arrow in the diagram below.

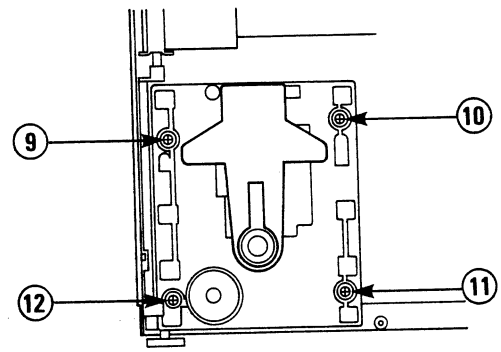


REMOVING THE MECHANISM

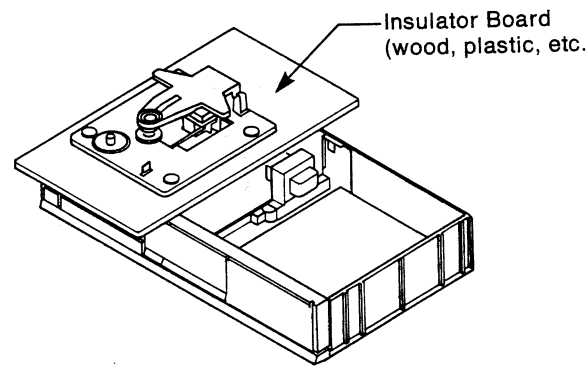
1. Take out the eighth screws (1 ~ 8 in the diagram below) with which the Cabinet Front is mounted in place and remove the Cabinet Front.



2. Take out the four screws (9 ~ 12 in the diagram below) with which the mechanism is mounted in place and remove the mechanism.



- The mechanism should be removed with the lead wires still attached, and then placed on a wooden or plastic sheet as shown below to adjust the diffraction grating.



ADJUSTMENT PROCEDURES

BEFORE CHECKING OR ADJUSTING CD PLAYER

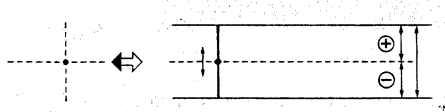
1. Procedures for all adjustments for the CD player from start to finish are described below.
2. The pick-up does not have to be adjusted if everything has been checked and no problems were found.

CHECKING FOCUS ERROR SIGNAL

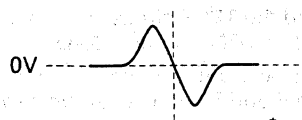
The effectiveness of the pick-up is determined by checking its focus error signal. This must be checked before any repairs are performed on the CD player.

1. Apply Power Switch to the set and press the STOP button.
2. Cut Main P.C.Board jumper cable J223 and connect an oscilloscope between P202 left terminal and the **GND.** (Set the time at 0.5Sec/DIV.)
3. Press the OPEN/CLOSE button, place the test disc on the table load, and then press the OPEN/CLOSE button once again.
4. Once the disc is set, a waveform like that shown in the illustration below will be repeated three times. Check that the p-p voltage of this waveform is the same above and below the horizontal axis at 3V.

Repeated three times



(Measured with a Memory Scope)



* p-p voltage of 3V
* + and − voltage roughly same

5. Press the OPEN/CLOSE button repeatedly to pull out and insert the disc until the waveform appears each time the disc is inserted and removed.
6. If the results of the above procedure are not satisfactory, the pick-up is damaged.
7. After completing checks of the focus error signal solder the jumper line (J223) back in place.

FREE RUN FREQUENCY ADJUSTMENT

1. Connect the frequency counter to VCO test terminal (CN11-1) **PCK** test pin and to **GND.** (Use a 10:1 probe.)
2. Short the test point **TP DSP OFF** pin to **GND.**
3. Apply Power Switch to the set and press the STOP button.
4. Adjust the OSC coil T202 using a plastic screwdriver until the frequency counter indicator reads 4.3218MHz.

SETTING OF INITIAL POSITION OF VOLUME

1. Set the variable resistors to the initial positions listed below:

P202 (FOCUS GAIN)	Mechanical Center
P203 (E/F BALANCE)	Mechanical Center
P204 (TRACKING GAIN)	Mechanical Center
P205 (TRACKING OFFSET)	Mechanical Center
P206 (KICK GAIN)	Mechanical Center

FOCUS OFFSET ADJUSTMENT

1. Apply Power Switch to the set and press the STOP button.
2. Connect a DC Voltmeter to the test terminal (CN9-5) **F** (focus coil) pin and short the focus test terminal (CN10-2) **FOF** pin to **GND.**
3. In this condition check that the DC Voltmeter indicator is in the range −0.7V ~ −1.2V.

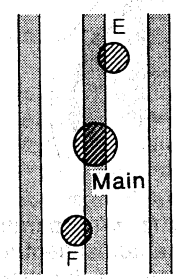
TRACKING OFFSET ADJUSTMENT

1. Apply Power Switch to the set and press the STOP button.
2. Connect a DC Voltmeter to the test terminal (CN9-3) **T** (tracking coil) pin and short the focus test terminal **TOF** pin to **GND.**
3. In this condition check that the DC Voltmeter indicator is in the range 0V±200mV, and adjust P205 if it is not.

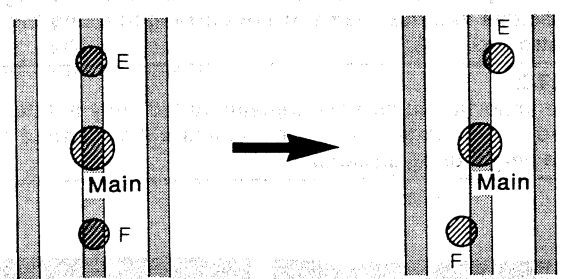
NOTE:
Perform this adjustment once again after adjusting the E/F BALANCE and TRACKING GAIN signals.

DIFFRACTION GRID ADJUSTMENT

This set uses a three-beam laser pick-up system. Adjusting the diffraction grid means adjustment so that beams E and F are in position with respect to the main beam as shown in the diagram below on the bit streams.



The adjustment procedure involves arranging the three beams in a straight line along the same bit stream and then adjusting them to specified positions.



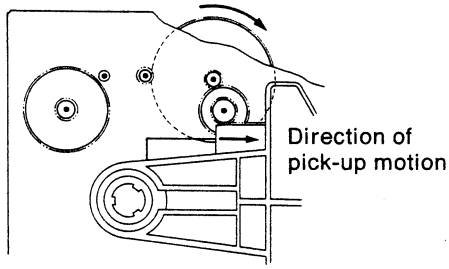
The adjustment steps are detailed below. These are very fine adjustments so great care should be exercised in this.

DIFFRACTION GRID ADJUSTMENT

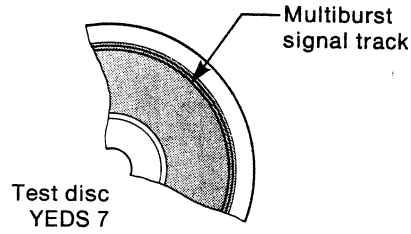
1. Apply Power Switch to the set and press the STOP button.
2. Short tester terminal (CN9-1,2) microprocessor **TEST** pin to the **TEST** pin, and then short test terminal (CN12-1) **TOFF** pin to **GND** to turn the tracking servo OFF.
3. In this state, connect the **E**-beam output of test terminal (CN12-6) to Channel 1 of the oscilloscope and **F**-beam output of test terminal (CN12-4) to Channel 2, and now observe the lissajous waveform on the oscilloscope.

300

4. Place the test disc YEDS7 on the table load, and press the PLAY button.
5. When the disc begins to rotate a waveform will appear on the oscilloscope. While observing this waveform, turn the gears in the direction of the arrow by hand to send the pick-up to the outer edge.



6. When the pick-up approaches the outer edge, the waveform on the oscilloscope will suddenly disappear, and if it is now pushed further outwards there will be points at which waveforms will appear again. These locations are the multiburst signal storage locations. If the disc rotates at high speed at this time, perform this step once again.



7. Set the oscilloscope to X-Y operation to bring up the waveforms. Insert the adjustment tool in the diffraction grating adjustment hole on the pick-up, and rotate the adjustment tool to right and left. The waveform should be almost a straight line with a phase difference of 0° as shown in Fig. 1 below. This indicates that the beams are arranged in one straight line. The waveform in Fig. 2 indicates that the beams are not arranged along the same stream.

NOTE:
It is important to turn the adjustment tool only a little at a time. If it is rotated too far, the beams will be pushed over into neighboring streams.

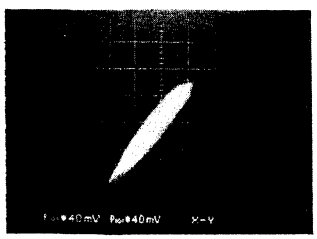


Fig. 1

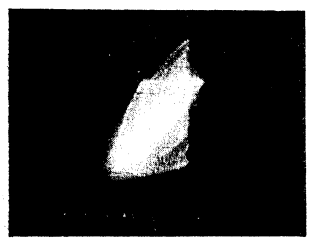
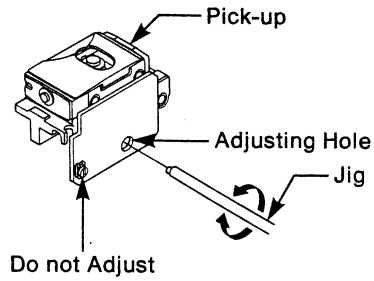


Fig. 2



8. Next, when the waveform in Fig. 1 is obtained, turn the adjustment tool clockwise from that position at which the waveform in Fig. 1 appeared and adjust so that the waveform is a straight line with a phase difference of 180°. (See Fig. 3)

Fig. 3

9. Once the state indicated by the waveform in Fig. 3 is obtained, hold the STOP button down temporarily, and remove the connection between tester terminal (CN9-1,2) microprocessor **TEST** pin and the **TEST** pin as well as that between test terminal (CN12-1) **TOFF** pin and **GND.**
10. Next, press the PLAY button, and set the oscilloscope in the DUAL MODE so that both E and F outputs can be seen. Set the DISPLAY TIME to 5μs. Now, adjustment is complete if the waveforms shown below in Fig. 4 (Channel 1 trigger) are obtained.

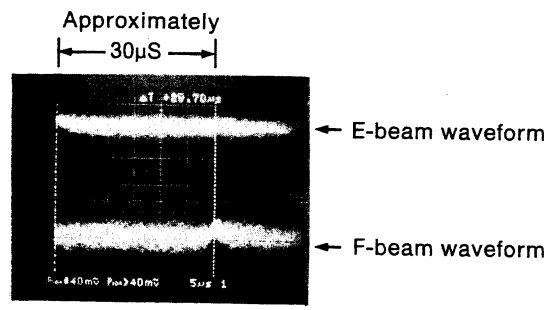


Fig. 4

NOTE:
Diffraction grating adjustment is performed for a single pick-up, so if the following checks are performed adjustment is unnecessary.

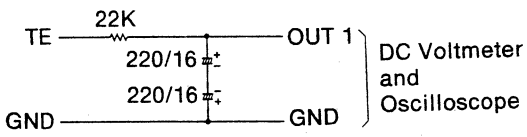
a. PLAY the fourth item on the test disc (Modern Wave Ⅱ CA35-1045, Toshiba-EMI), turn the tracking servo OFF, and check that the waveform is linear with a phase difference of 180°.
b. Next, apply tracking servo, and if the waveforms shown in Fig. 4 are obtained then adjustment is unnecessary.

E/F BALANCE ADJUSTMENT

1. Place the test disc (Modern Wave Ⅱ) on the table load, and play the fourth item on the disc. Short the test terminal (CN9-1,2) microprocessor **TEST** pin to the **TEST** pin,

and test terminal (CN12-1) **TOFF** pin to **GND** to turn tracking servo OFF.

2. Connect a DC Voltmeter and an oscilloscope via the low-pass filter like that shown in the illustration below to the test terminal (CN12-3) **TE** (tracking error) pin.



Measurement circuit

3. Adjust P203 so that the DC Voltmeter reading is minimum (oscilloscope waveform is symmetric to + and − about the zero level).

CONFIRMING JITTER

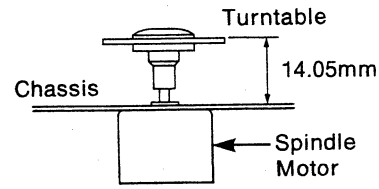
If no jitter counter is available, this check does not have to be have to be performed.

1. PLAY the fourth item on the test disc (Modern Wave Ⅱ).
2. Connect an oscilloscope to the test terminal (CN10-3) **HF** pin, and check that its level is in the range 2.0Vp-p ~ 3.3Vp-p.
3. Connect a jitter counter to test terminal (CN11-4) **EFM** pin, and check that the 3T jitter value is less than 20ns. (Window width: 600ns ~ 850ns, Set Level: 2.5V)
4. Now PLAY the tenth item on the test disc and check that the jitter value is less than 20ns again.

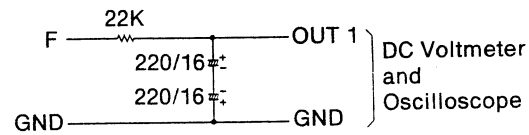
ADJUSTMENT OF TURNTABLE HEIGHT

This adjustment must be performed when the Spindle Motor is replaced.

1. The turntable should be mounted so that its upper surface is 14.05mm±0.1mm above the surface of the chassis.



2. Place the test disc (Modern Wave Ⅱ) on the turntable.
3. Connect a DC Voltmeter and an oscilloscope via the low-pass filter shown below to test terminal (CN9-5) **F** (focus coil) pin.



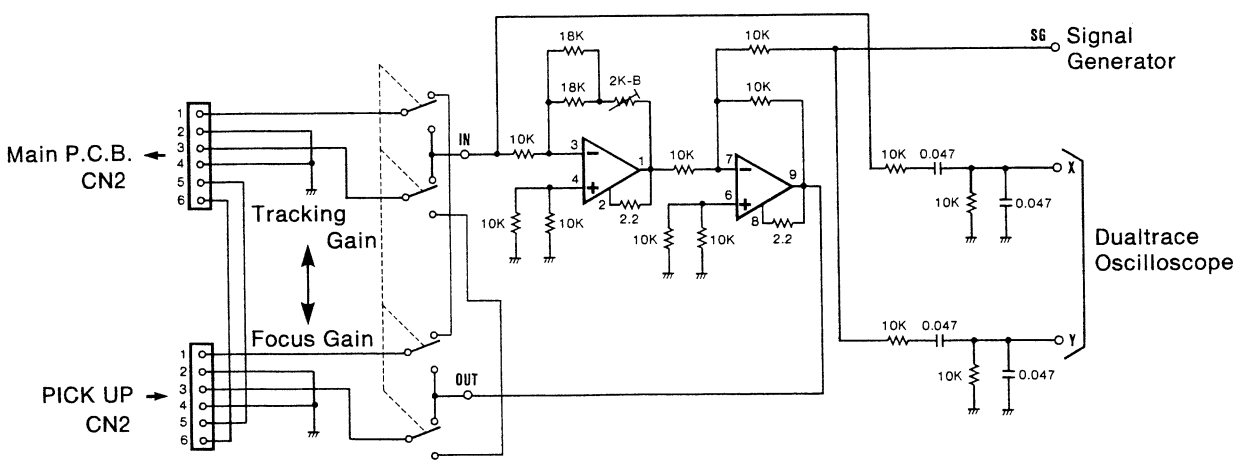
Measurement circuit

4. Apply Power Switch to the set and PLAY the first item on the disc.
5. If the DC Voltmeter reading is not in the ranges 0V±0.2V for inner tracks and 0V±0.35V for outer tracks, then the turntable height must be readjusted. Raise the turntable higher if the DC Voltmeter indicator is on the plus (+) side, and lower it if it is on the minus (−) side. (With this circuit 1V represents movement of approximately 0.55mm ~ 0.65mm.)

ADJUSTMENT OF FOCUS/TRACKING GAIN

The measurement circuit diagrammed below must be used in order to adjust focus gain and tracking gain correctly.

1. Use IC TA7256P or an equivalent product.
2. Short the interval between **IN** and **SG**, apply 1kHz, 1Vp-p from **SG**, and adjust variable resistor 2kΩ-B so that the **OUT** output is minimum.



Measurement circuit

300

ADJUSTMENT PROCEDURES (Continued)

FOCUS GAIN ADJUSTMENT

1. Apply P202 to the center position, and place the test disc (Modern Wave Ⅱ) on the table load.
2. Connect the measurement tool described in the last section to focus coil pin (CN2).
3. Apply Power Switch to the set and PLAY the first item on the test disc. Now apply a signal of 900Hz and 0.3Vp-p from the signal generator to the measurement circuit.
4. Set the oscilloscope to X-Y operation, and while observing the lissajous waveform adjust P202 to the point where the phase difference is 90° as shown in Fig. 5 below.

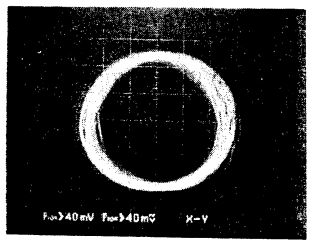


Fig. 5

TRACKING GAIN ADJUSTMENT

1. Apply P204 to the center position, and place the test disc (Modern Wave Ⅱ) on the table load.
2. Connect the measurement tool described in the last section to the tracking coil pin CN2.
3. Apply Power Switch to the set and PLAY the first item on the test disc. Now apply a signal of 1350Hz and 0.3Vp-p from the signal generator to the measurement circuit.
4. Set the oscilloscope to X-Y operation, and while observing the lissajous waveform adjust P204 to the point where the phase difference is 90° as shown in Fig. 5 above.

NOTE:
If these two adjustments are performed, the TRACKING OFFSET must also be adjusted.

KICK GAIN ADJUSTMENT

1. Place the test disc (Modern Wave Ⅱ) on the table load.
2. Set the oscilloscope to NORMAL TRIG., set the EXT. TRIG. pin to external trigger, and input the trigger from test terminal (CN11-2) **TRH** pin to the oscilloscope.
3. Next connect test terminal (CN10-3) **HF** pin to Channel 1 of the oscilloscope, and connect test terminal (CN12-3) **TE** pin to Channel 2.
4. Apply Power Switch to the set and PLAY the first item on the test disc, and the press the PAUSE button. Now observe the waveforms for **HF** and **TE** with triggers applied from test terminal (CN11) **TRH** pin. At this point, adjust P206 so that a kick pulse waveform of about 1.5 tracks as shown in Fig. 6 below is obtained.

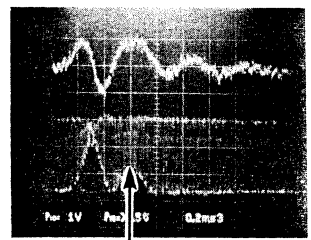


Fig. 6

ACCESS OPERATION CHECK

1. Vary the FREE RUN FREQUENCY from a center value of 4.3218MHz to ±50kHz (4.2700MHz ~ 4.3700MHz), and have the pick-up search from the track closest to the center to the outermost track and then back into the track nearest the center, to check that operation is stable.

NOTE:
After this adjustment is completed, be sure to adjust back to 4.3218MHz.

P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty
MAIN P.C.B. ASSY			
31	620 192 1670	Main P.C.B. Assy	1
	620 017 2721	Fuse Clip	4
	620 017 5500	Pin Jack 2P	1
	620 031 4763	Wire Wrap Terminal	1
	620 053 0767	Cover Sever	2
	620 053 7247	Plate Heat Sink	1
	620 053 9562	Plate Heatsink	1
	423 003 7201	FUSE 250V T500mA	2
	411 020 7700	SCR S-TPG BRZ 3X6	1
CN1	620 021 8337	Plug 6P	1
CN2	620 021 8610	Plug 6P	1
CN3	620 021 9976	Plug 9P	1
CN6	620 021 6555	Plug 4P	1
CN9	620 021 5589	Plug 5P	1
CN10	620 021 4346	Plug 4P	1
CN11	620 021 4346	Plug 4P	1
CN12	620 021 3950	Plug 6P	1
CN20	620 021 6234	Plug 7P	1
CN21	620 021 6678	Plug 9P	1
P202	620 006 1377	Potentiometer (B-10kΩ)	1
P203	620 006 2343	Potentiometer (B-100kΩ)	1
P204	620 006 1360	Potentiometer (B-22kΩ)	1
P206	620 006 1353	Potentiometer (B-100kΩ)	1
T202	620 028 8774	OSC Coil	1
X201	620 007 3332	Crystal	1
IC201	409 124 6507	IC LA9200NM	1
IC202	409 168 1308	IC LC7860J	1
IC203	409 067 0709	IC LC7880	1
IC204	409 136 9206	IC FA5205P	1
IC205	409 123 7109	IC LC3517BS-15	1
IC206	409 159 9603	IC LC6520H-3783	1
IC207	409 018 5401	IC LA6462S	1
IC208	409 018 5104	IC LA6458SS	1
IC210	409 057 4601	IC UPC4570HA	1
IC211	409 050 0501	IC TA78L006AP	1
IC212	409 026 8500	IC L78M05	1
IC213	409 136 9503	IC TA79L006P	1
Q201	405 019 3804	TR 2SC536-G-NP-AA	1
Q205	405 021 0600	TR 2SD1012-G-SPA-AC	1
Q208	405 018 2600	TR 2SC3400	1
Q209	405 021 0600	TR 2SD1012-G-SPA-AC	1
Q210	405 021 0600	TR 2SD1012-G-SPA-AC	1
Q211	405 021 0600	TR 2SD1012-G-SPA-AC	1
Q212	405 021 0600	TR 2SD1012-G-SPA-AC	1
Q213	405 019 3804	TR 2SC536-G-NP-AA	1
Q214	405 004 4502	TR 2SA608-F-NP-AA	1
Q215	405 004 4502	TR 2SA608-F-NP-AA	1
Q216	405 004 4502	TR 2SA608-F-NP-AA	1
Q220	405 037 0205	TR 2SC3860	1
Q221	405 037 0205	TR 2SC3860	1
Q230	405 018 2600	TR 2SC3400	1
Q231	405 004 4502	TR 2SA608-F-NP-AA	1
Q234	405 024 9907	TR 2SD734-F	1
Q235	405 019 3804	TR 2SC536-G-NP-AA	1
D201	407 000 3503	VARACTOR DI SVC211SP	1
D202	407 007 9904	DIODE GMA01-BT	1
D203	407 005 3805	DIODE DS442-BT	1
D205	407 005 3805	DIODE DS442-BT	1
D207	407 007 9904	DIODE GMA01-BT	1
D208	407 007 9904	DIODE GMA01-BT	1
D209	407 007 9904	DIODE GMA01-BT	1
D210	407 007 9904	DIODE GMA01-BT	1
D211	407 007 9904	DIODE GMA01-BT	1
D212	407 007 9904	DIODE GMA01-BT	1
D214	407 005 3805	DIODE DS442-BT	1
D215	407 005 3805	DIODE DS442-BT	1
D216	407 005 3805	DIODE DS442-BT	1
D219	407 007 9904	DIODE GMA01-BT	1
D220	407 007 9904	DIODE GMA01-BT	1
D221	407 007 9904	DIODE GMA01-BT	1
D222	407 005 3805	DIODE DS442-BT	1
D225	407 007 9904	DIODE GMA01-BT	1
D226	407 005 8602	DIODE ERA15-02	1
D227	407 005 8602	DIODE ERA15-02	1
D228	407 005 8602	DIODE ERA15-02	1
D229	407 005 8602	DIODE ERA15-02	1
D230	407 050 6806	ZENER DIODE GZA7.5X	1
D231	407 007 9904	DIODE GMA01-BT	1

Ref. No.	Part No.	Description	Q'ty
D232	407 007 9904	DIODE GMA01-BT	1
D233	407 007 9904	DIODE GMA01-BT	1
C201	403 030 6309	CERAMIC 68P J 50V	1
C202	403 030 6309	CERAMIC 68P J 50V	1
C203	403 071 2001	CERAMIC 180P K 50V	1
C204	403 048 7602	ELECT 0.47U M 50V	1
C205	403 158 3501	NP-ELECT 0.47U M 50V	1
C206	403 073 7004	CERAMIC 470P K 50V	1
C207	403 063 2606	POLYESTER 0.068U K 50V	1
C208	403 067 5603	MT-COMPO 0.1U J 50V	1
C209	403 073 7004	CERAMIC 470P K 50V	1
C210	404 028 9302	CERAMIC 0.1U Z 50V	1
C211	403 022 7703	CERAMIC 33P J 50V	1
C212	403 022 7703	CERAMIC 33P J 50V	1
C214	403 001 1906	CERAMIC 0.01U M 16V	1
C215	403 069 1207	CERAMIC 1000P K 50V	1
C216	403 067 6204	MT-COMPO 0.15U J 50V	1
C217	403 086 1402	NP-ELECT 0.22U M 50V	1
C218	403 086 1600	NP-ELECT 0.33U M 50V	1
C219	403 025 7304	CERAMIC 4.7P K 50V	1
C220	404 028 9302	CERAMIC 0.1U Z 50V	1
C221	403 071 6207	CERAMIC 220P K 50V	1
C222	403 057 8003	POLYESTER 0.012U K 50V	1
C223	403 057 8003	POLYESTER 0.012U K 50V	1
C224	403 071 7501	CERAMIC 2200P K 50V	1
C225	403 071 7501	CERAMIC 2200P K 50V	1
C226	403 086 2706	NP-ELECT 1U M 50V	1
C228	403 042 0302	ELECT 10U M 16V	1
C229	403 038 2303	ELECT 100U M 6.3V	1
C230	403 001 1906	CERAMIC 0.01U M 16V	1
C231	403 086 2706	NP-ELECT 1U M 50V	1
C232	403 071 6207	CERAMIC 220P K 50V	1
C233	403 003 8705	CERAMIC 0.039U K 25V	1
C234	403 087 2507	STYRENE 1000P J 50V	1
C235	403 001 1906	CERAMIC 0.01U M 16V	1
C236	404 028 9302	CERAMIC 0.1U Z 50V	1
C237	403 057 0908	POLYESTER 0.01U K 50V	1
C238	403 149 7105	POLYPRO 680P J 100V	1
C239	403 003 6701	CERAMIC 0.033U K 25V	1
C240	404 028 9302	CERAMIC 0.1U Z 50V	1
C241	403 021 7308	CERAMIC 3.3P K 50V	1
C242	403 021 7308	CERAMIC 3.3P K 50V	1
C243	403 003 8705	CERAMIC 0.039U K 25V	1
C244	403 003 8705	CERAMIC 0.039U K 25V	1
C245	403 047 1502	ELECT 4.7U M 25V	1
C246	403 047 1502	ELECT 4.7U M 25V	1
C249	403 158 3600	NP-ELECT 4.7U M 16V	1
C250	403 158 3600	NP-ELECT 4.7U M 16V	1
C253	403 070 8608	CERAMIC 1500P K 50V	1
C254	403 070 8608	CERAMIC 1500P K 50V	1
C255	403 019 9703	CERAMIC 27P J 50V	1
C256	403 019 9703	CERAMIC 27P J 50V	1
C259	403 049 1609	ELECT 1U M 50V	1
C260	403 047 1502	ELECT 4.7U M 25V	1
C263	403 038 2303	ELECT 100U M 6.3V	1
C264	403 069 8404	CERAMIC 0.01U Z 50V	1
C267	403 069 8404	CERAMIC 0.01U Z 50V	1
C268	403 043 3104	ELECT 2200U M 16V	1
C269	403 043 3104	ELECT 2200U M 16V	1
C270	403 039 2906	ELECT 47U M 6.3V	1
C271	403 039 2906	ELECT 47U M 6.3V	1
C272	403 039 2906	ELECT 47U M 6.3V	1
C273	403 042 0302	ELECT 10U M 16V	1
C274	403 040 2704	ELECT 22U M 10V	1
C275	403 001 1906	CERAMIC 0.01U M 16V	1
C276	403 038 7209	ELECT 220U M 6.3V	1
C280	403 069 8404	CERAMIC 0.01U Z 50V	1
C281	403 038 7209	ELECT 220U M 6.3V	1
C287	403 039 2906	ELECT 47U M 6.3V	1
C288	403 042 0302	ELECT 10U M 16V	1
C289	403 042 0302	ELECT 10U M 16V	1
C290	403 001 1906	CERAMIC 0.01U M 16V	1
C294	403 039 2906	ELECT 47U M 6.3V	1
C296	403 069 1207	CERAMIC 1000P K 50V	1
C297	403 069 1207	CERAMIC 1000P K 50V	1
C298	403 069 1207	CERAMIC 1000P K 50V	1
C299	403 069 1207	CERAMIC 1000P K 50V	1
C310	403 001 1906	CERAMIC 0.01U M 16V	1
C311	404 028 9302	CERAMIC 0.1U Z 50V	1

300

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
POWER SWITCH P.C.B. ASSY			
32	620 192 1687	Power Switch P.C.B. Assy	1
	620 031 4763	Wire Wrap Terminal	2
S901 ⚠	620 015 2365	Power Switch	1
C901 ⚠	620 006 6679	Capacitor 0.01MF400V	1
POWER TRANS P.C.B. ASSY			
33	620 192 1694	Power Trans P.C.B. Assy	1
W3	620 024 2011	Wire 3 Parallel	1
W4	620 024 2028	Wire 2 Parallel	1
LAMP P.C.B. ASSY			
34	620 192 1700	Lamp P.C.B. Assy	1
	620 017 2721	Fuse Clip	2
	620 188 0861	Lamp	2
⚠	423 004 6807	FUSE 250V T315mA	1
R101	402 040 4008	OXIDE-MT 15 JB 1/2W	1
CONTROL P.C.B. ASSY			
35	620 192 1717	Control P.C.B. Assy	1
	620 182 7842	Tact Switch	9
CN20	620 020 7669	Connector 7P Assy	1
CN21	620 020 2367	Connector 9P Assy	1
Q801	405 034 7108	TR DTA114-TF	1
Q802	405 034 7108	TR DTA114-TF	1
Q803	405 034 7108	TR DTA114-TF	1
D801	407 018 9405	LED SL-1283	1
D802	407 062 9208	LED SLB-55MG3	1
D803	407 062 9307	LED SLB-55VR3	1
D804	407 062 9307	LED SLB-55VR3	1
D806	407 007 9904	DIODE GMA01-BT	1
D807	407 007 9904	DIODE GMA01-BT	1
D808	407 007 9904	DIODE GMA01-BT	1
D809	407 007 9904	DIODE GMA01-BT	1
D810	407 007 9904	DIODE GMA01-BT	1
D811	407 007 9904	DIODE GMA01-BT	1
D812	407 007 9904	DIODE GMA01-BT	1
D813	407 007 9904	DIODE GMA01-BT	1
D814	407 007 9904	DIODE GMA01-BT	1
R801	401 024 6700	CARBON 100 JA 1/6W	1
R802	401 024 6700	CARBON 100 JA 1/6W	1
R803	401 024 6700	CARBON 100 JA 1/6W	1
R804	401 024 6700	CARBON 100 JA 1/6W	1
R805	401 024 6700	CARBON 100 JA 1/6W	1
R806	401 024 6700	CARBON 100 JA 1/6W	1
R807	401 024 6700	CARBON 100 JA 1/6W	1
R808	401 024 6700	CARBON 100 JA 1/6W	1
R809	401 023 0709	CARBON 82 JA 1/4W	1

NOTES:

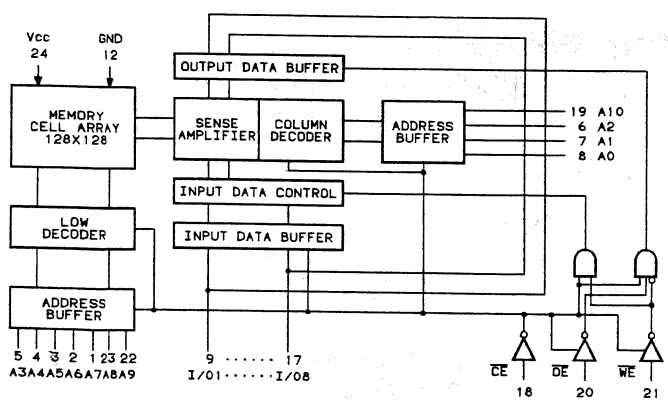
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

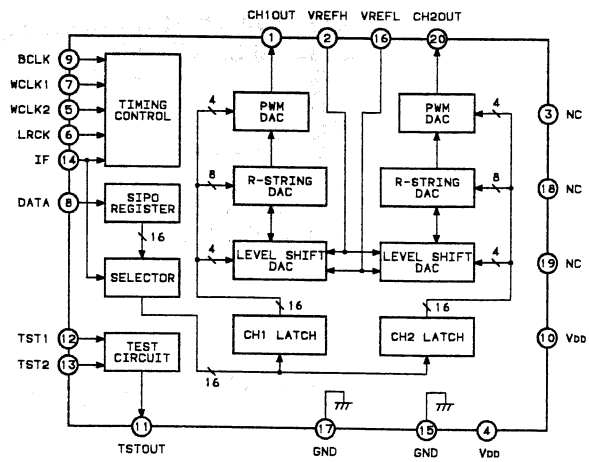
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

IC BLOCK DIAGRAM

LC3517BS-15 BLOCK DIAGRAM



LC7880 BLOCK DIAGRAM



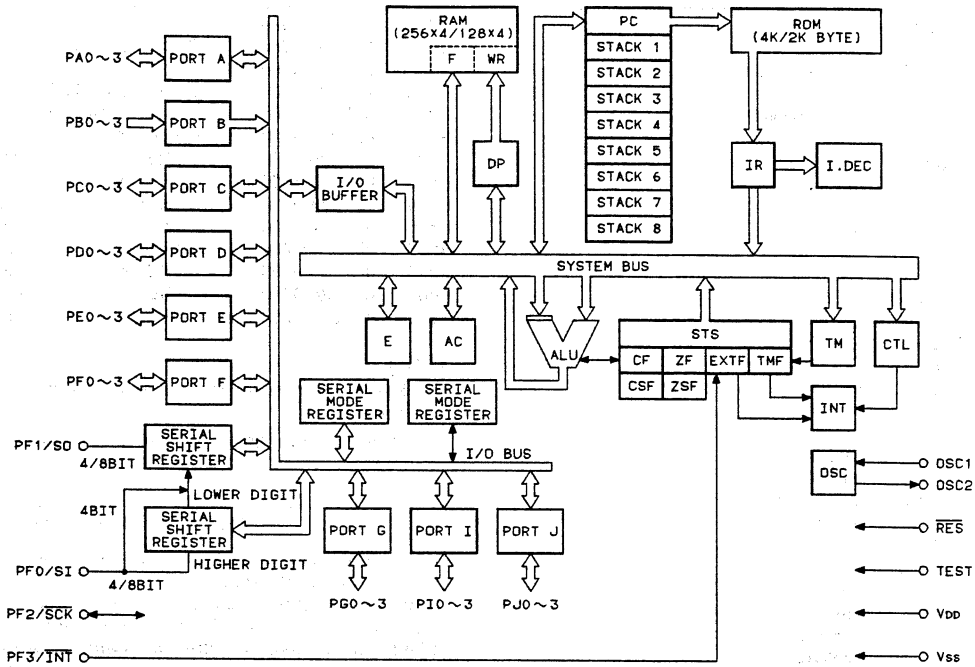
300

P.C.BOARD PARTS LIST (Continued)

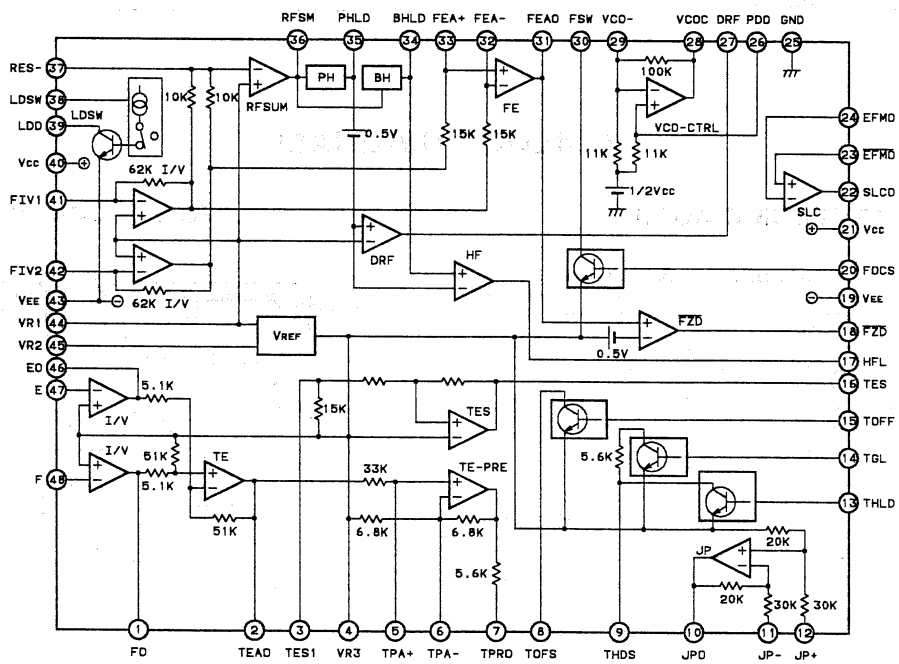
Ref. No.	Part No.	Description	Q'ty
C312	404 028 9302	CERAMIC 0.1U Z 50V	1
C314	403 042 0302	ELECT 10U M 16V	1
C315	403 042 0302	ELECT 10U M 16V	1
C316	403 042 0302	ELECT 10U M 16V	1
C325	403 086 2706	NP-ELECT 1U M 50V	1
C340	403 002 6207	CERAMIC 0.012U K 25V	1
C341	403 002 6207	CERAMIC 0.012U K 25V	1
C342	403 071 7501	CERAMIC 2200P K 50V	1
C343	403 071 7501	CERAMIC 2200P K 50V	1
C344	403 039 2906	ELECT 47U M 6.3V	1
C345	403 039 2906	ELECT 47U M 6.3V	1
C346	403 042 0302	ELECT 10U M 16V	1
C347	403 042 0302	ELECT 10U M 16V	1
C348	403 015 1602	CERAMIC 2P C 50V	1
C349	403 008 5204	CERAMIC 10P D 50V	1
C350	403 039 2906	ELECT 47U M 6.3V	1
C351	404 028 9302	CERAMIC 0.1U Z 50V	1
C352	403 049 1609	ELECT 1U M 50V	1
C353	403 074 2701	CERAMIC 0.047U Z 50V	1
C356	403 072 2703	CERAMIC 0.022U Z 50V	1
C358	403 072 2703	CERAMIC 0.022U Z 50V	1
C361	403 069 4000	CERAMIC 1000P Z 50V	1
C363	403 068 9105	CERAMIC 100P K 50V	1
R201	401 024 7707	CARBON 100K JA 1/6W	1
R202	401 025 1902	CARBON 15K JA 1/6W	1
R203	401 027 2600	CARBON 5.6K JA 1/6W	1
R204	401 024 7707	CARBON 100K JA 1/6W	1
R206	401 027 2600	CARBON 5.6K JA 1/6W	1
R208	401 025 8208	CARBON 22K JA 1/6W	1
R209	401 024 7707	CARBON 100K JA 1/6W	1
R210	401 025 8208	CARBON 22K JA 1/6W	1
R211	401 024 9305	CARBON 1.2K JA 1/6W	1
R212	401 027 0309	CARBON 47K JA 1/6W	1
R213	401 026 1604	CARBON 270K JA 1/6W	1
R214	401 024 6403	CARBON 10 JA 1/6W	1
R215	401 025 5405	CARBON 2.2 JA 1/6W	1
R216	401 025 2305	CARBON 150K JA 1/6W	1
R218	401 024 7707	CARBON 100K JA 1/6W	1
R219	401 025 7805	CARBON 2.2K JA 1/6W	1
R220	401 026 0607	CARBON 270 JA 1/6W	1
R221	401 024 9701	CARBON 12K JA 1/6W	1
R222	401 026 7408	CARBON 39K JA 1/6W	1
R223	401 019 3004	CARBON 39K JA 1/4W	1
R224	401 025 1902	CARBON 15K JA 1/6W	1
R225	401 026 1307	CARBON 27K JA 1/6W	1
R226	401 025 8703	CARBON 220K JA 1/6W	1
R227	401 026 1307	CARBON 27K JA 1/6W	1
R228	401 026 4902	CARBON 330K JA 1/6W	1
R229	401 024 6403	CARBON 10 JA 1/6W	1
R232	401 025 7805	CARBON 2.2K JA 1/6W	1
R235	401 024 7400	CARBON 10K JA 1/6W	1
R236	401 024 7707	CARBON 100K JA 1/6W	1
R237	401 024 7707	CARBON 100K JA 1/6W	1
R238	401 025 8208	CARBON 22K JA 1/6W	1
R239	401 025 8208	CARBON 22K JA 1/6W	1
R240	401 026 4308	CARBON 3.3K JA 1/6W	1
R241	401 026 9907	CARBON 4.7K JA 1/6W	1
R242	401 025 7409	CARBON 220 JA 1/6W	1
R243	401 025 8208	CARBON 22K JA 1/6W	1
R244	401 024 7004	CARBON 1K JA 1/6W	1
R245	401 025 1902	CARBON 15K JA 1/6W	1
R246	401 025 7805	CARBON 2.2K JA 1/6W	1
R247	401 012 8105	CARBON 100K JA 1/4W	1
R248	401 012 8105	CARBON 100K JA 1/4W	1
R249	401 027 3201	CARBON 560K JA 1/6W	1
R250	401 027 3201	CARBON 560K JA 1/6W	1
R251	401 027 3003	CARBON 56K JA 1/6W	1
R252	401 027 0309	CARBON 47K JA 1/6W	1
R253	401 027 5205	CARBON 680 JA 1/6W	1
R254	401 024 7400	CARBON 10K JA 1/6W	1
R255	401 025 5405	CARBON 2.2 JA 1/6W	1
R257	401 025 5405	CARBON 2.2 JA 1/6W	1
R258	401 025 4903	CARBON 180K JA 1/6W	1
R259	401 024 7400	CARBON 10K JA 1/6W	1
R260	401 025 5405	CARBON 2.2 JA 1/6W	1
R261	401 024 7400	CARBON 10K JA 1/6W	1
R262	401 025 7805	CARBON 2.2K JA 1/6W	1
R263	401 027 5502	CARBON 6.8K JA 1/6W	1
R264	401 016 4806	CARBON 22K JA 1/4W	1
R266	401 012 8105	CARBON 100K JA 1/4W	1
R267	401 012 8105	CARBON 100K JA 1/4W	1
R268	401 026 4605	CARBON 33K JA 1/6W	1
R269	401 026 4605	CARBON 33K JA 1/6W	1
R270	401 012 7009	CARBON 10K JA 1/4W	1
R271	401 018 3807	CARBON 3.3K JA 1/4W	1
R272	401 012 8105	CARBON 100K JA 1/4W	1
R273	401 015 4708	CARBON 180K JA 1/4W	1
R274	401 027 5205	CARBON 680 JA 1/6W	1
R275	401 027 5205	CARBON 680 JA 1/6W	1
R276	401 024 6700	CARBON 100 JA 1/6W	1
R277	401 024 7400	CARBON 10K JA 1/6W	1
R278	401 024 7400	CARBON 10K JA 1/6W	1
R279	401 024 9305	CARBON 1.2K JA 1/6W	1
R280	401 024 9305	CARBON 1.2K JA 1/6W	1
R281	401 025 8703	CARBON 220K JA 1/6W	1
R282	401 025 8703	CARBON 220K JA 1/6W	1
R283	401 026 6609	CARBON 390 JA 1/6W	1
R284	401 026 6609	CARBON 390 JA 1/6W	1
R295	401 024 7707	CARBON 100K JA 1/6W	1
R296	401 024 7707	CARBON 100K JA 1/6W	1
R297	401 025 7805	CARBON 2.2K JA 1/6W	1
R298	401 025 7805	CARBON 2.2K JA 1/6W	1
R299	401 027 5502	CARBON 6.8K JA 1/6W	1
R300	401 027 5502	CARBON 6.8K JA 1/6W	1
R301	401 024 7400	CARBON 10K JA 1/6W	1
R302	401 024 7400	CARBON 10K JA 1/6W	1
R303	401 025 1902	CARBON 15K JA 1/6W	1
R304	402 039 2800	FUSIBLE RES 10 JA 1/4W	1
R305	402 016 4506	FUSIBLE RES 10 J- 1/2W	1
R306	402 039 2800	FUSIBLE RES 10 JA 1/4W	1
R307	402 016 4506	FUSIBLE RES 10 J- 1/2W	1
R308	402 016 4506	FUSIBLE RES 10 J- 1/2W	1
R309	401 016 1508	CARBON 22 JA 1/4W	1
R311	401 016 1508	CARBON 22 JA 1/4W	1
R312	401 024 7707	CARBON 100K JA 1/6W	1
R313	401 027 0309	CARBON 47K JA 1/6W	1
R314	401 025 7409	CARBON 220 JA 1/6W	1
R315	401 025 8208	CARBON 22K JA 1/6W	1
R316	401 024 7400	CARBON 10K JA 1/6W	1
R317	401 024 7004	CARBON 1K JA 1/6W	1
R318	401 027 0309	CARBON 47K JA 1/6W	1
R319	401 026 4308	CARBON 3.3K JA 1/6W	1
R320	401 024 7400	CARBON 10K JA 1/6W	1
R321	401 026 1000	CARBON 2.7K JA 1/6W	1
R326	401 025 8208	CARBON 22K JA 1/6W	1
R330	401 018 4903	CARBON 33K JA 1/4W	1
R331	401 012 4503	CARBON 100 JA 1/4W	1
R332	401 015 3800	CARBON 18K JA 1/4W	1
R333	401 013 7305	CARBON 120K JA 1/4W	1
R334	401 020 2904	CARBON 47K JA 1/4W	1
R335	401 026 1604	CARBON 270K JA 1/6W	1
R336	401 026 1604	CARBON 270K JA 1/6W	1
R340	401 024 7400	CARBON 10K JA 1/6W	1
R343	401 024 7004	CARBON 1K JA 1/6W	1
R344	401 026 9600	CARBON 470 JA 1/6W	1
R353	401 024 8001	CARBON 1M JA 1/6W	1
R360	401 024 7707	CARBON 100K JA 1/6W	1
R361	401 024 7707	CARBON 100K JA 1/6W	1
R362	401 027 3003	CARBON 56K JA 1/6W	1
R363	401 027 3003	CARBON 56K JA 1/6W	1
R364	401 024 9701	CARBON 12K JA 1/6W	1
R365	401 024 9701	CARBON 12K JA 1/6W	1
R366	401 025 1605	CARBON 1.5K JA 1/6W	1
R367	401 025 1605	CARBON 1.5K JA 1/6W	1
R368	401 024 7004	CARBON 1K JA 1/6W	1
R369	401 024 7004	CARBON 1K JA 1/6W	1
R370	401 026 9600	CARBON 470 JA 1/6W	1
R371	401 027 0309	CARBON 47K JA 1/6W	1
R375	401 012 7009	CARBON 10K JA 1/4W	1
R377	401 025 8208	CARBON 22K JA 1/6W	1
R378	401 024 7400	CARBON 10K JA 1/6W	1
R379	401 024 7400	CARBON 10K JA 1/6W	1
R380	401 024 7400	CARBON 10K JA 1/6W	1
R381	401 027 5205	CARBON 680 JA 1/6W	1
R382	401 022 4104	CARBON 68K JA 1/4W	1
R383	401 027 5908	CARBON 68K JA 1/6W	1
RB201	620 004 5438	Resistor 10K-8 J	1

IC BLOCK DIAGRAM (Continued)

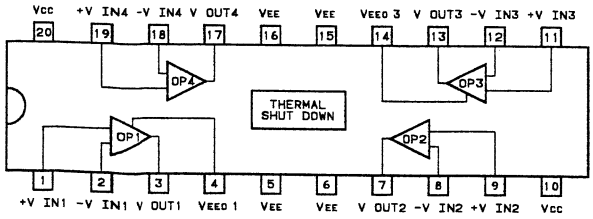
LC6520H-3783 BLOCK DIAGRAM



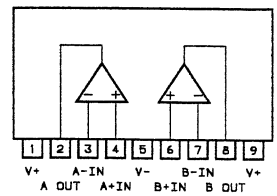
LA9200NM BLOCK DIAGRAM



FA5205P BLOCK DIAGRAM

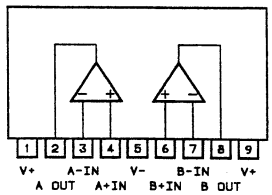


LA6458SS BLOCK DIAGRAM

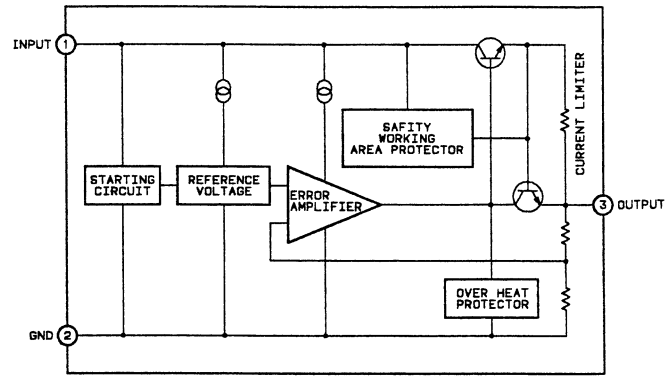


IC BLOCK DIAGRAM (Continued)

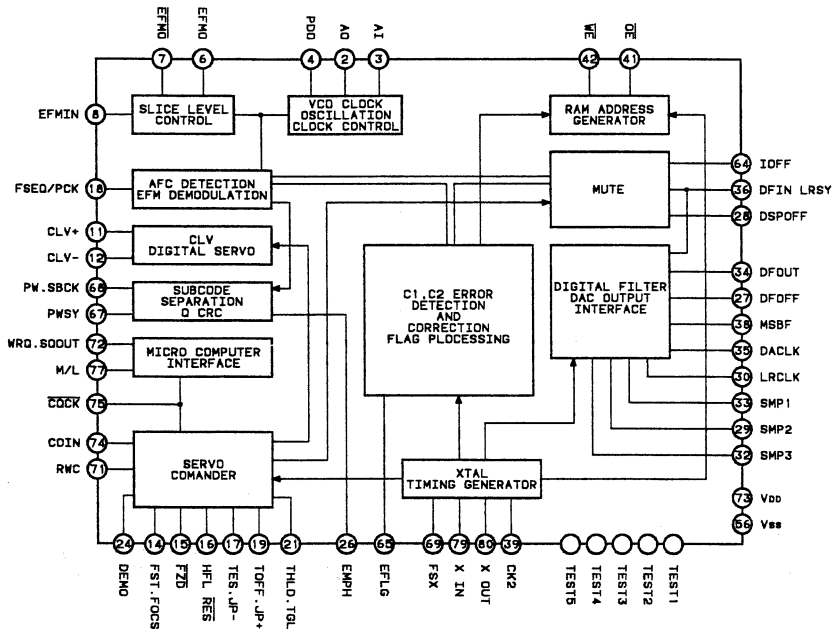
UPC4570HA BLOCK DIAGRAM



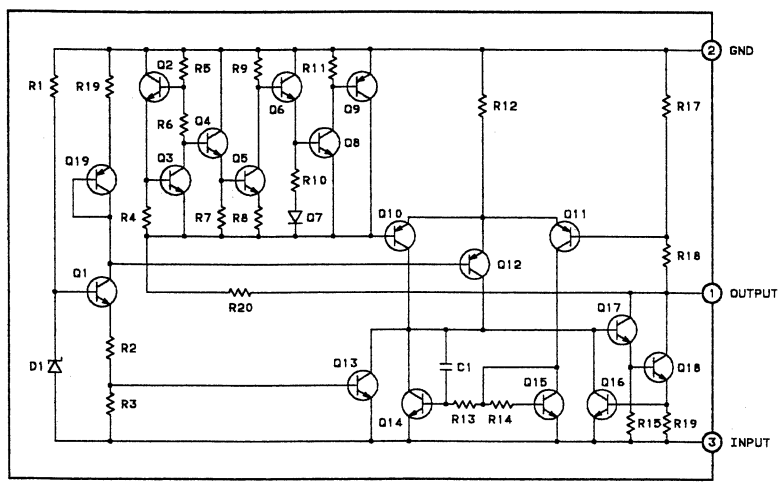
L78M05 BLOCK DIAGRAM



LC7860J BLOCK DIAGRAM

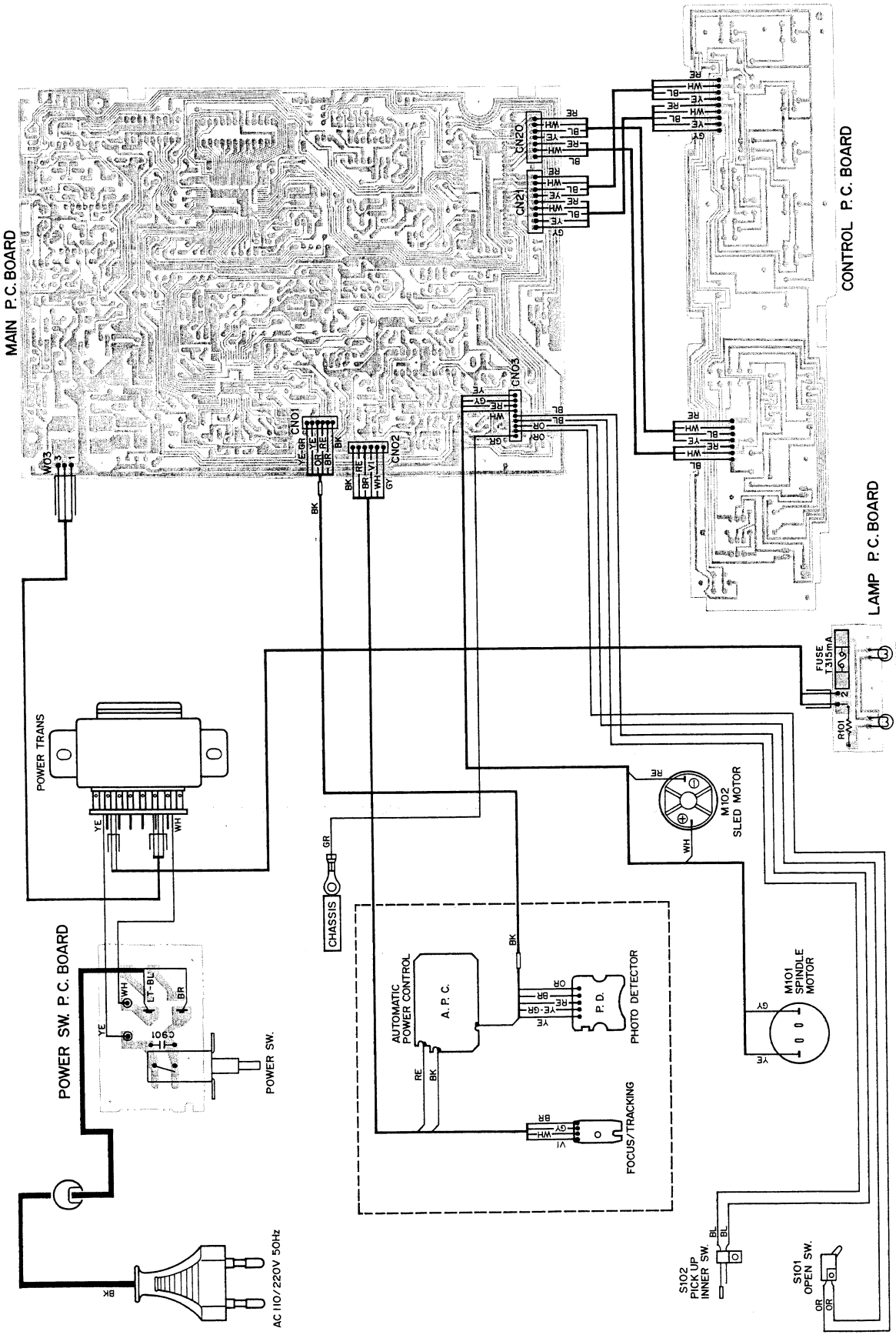


TA79L006P BLOCK DIAGRAM

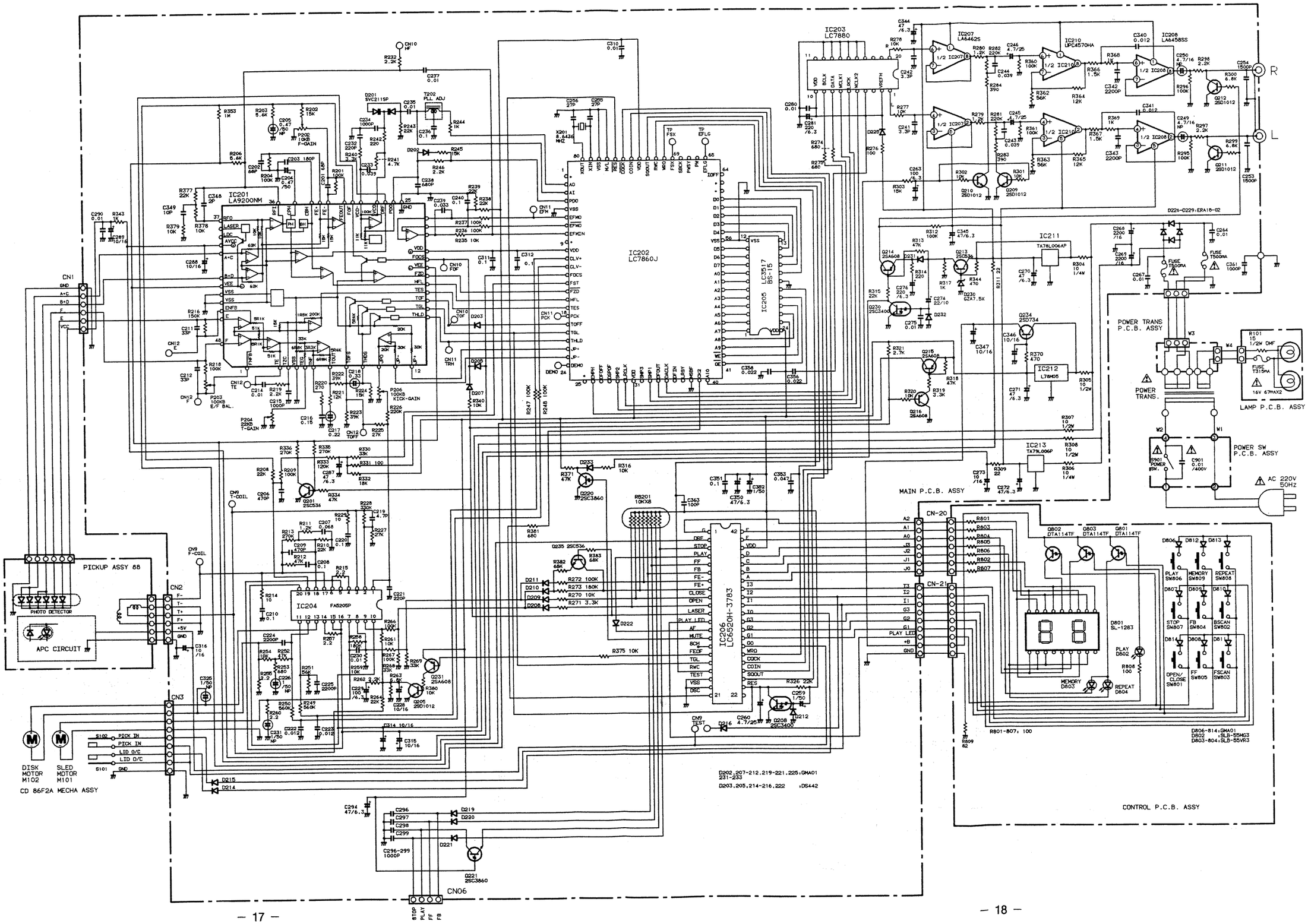


300

POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM



300

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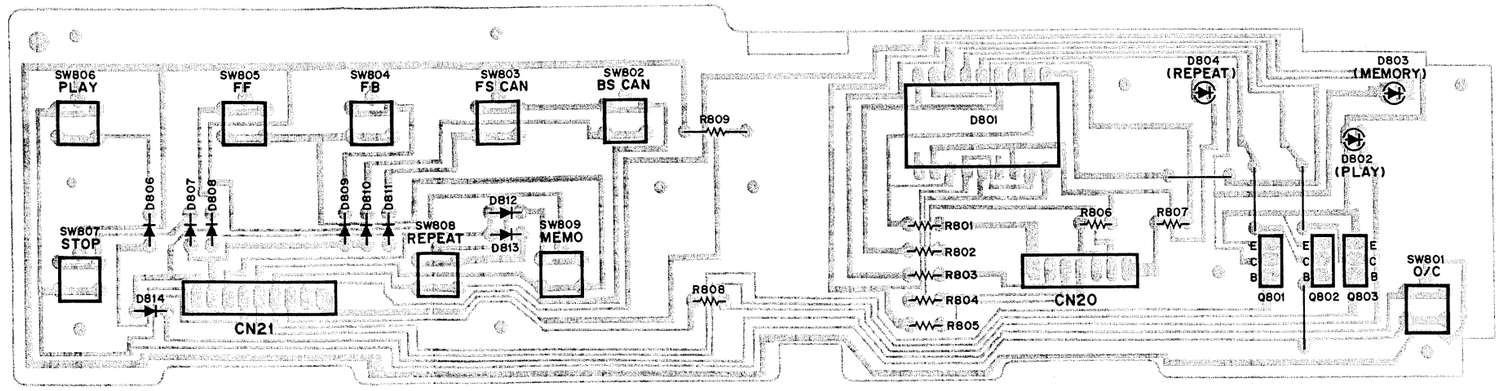
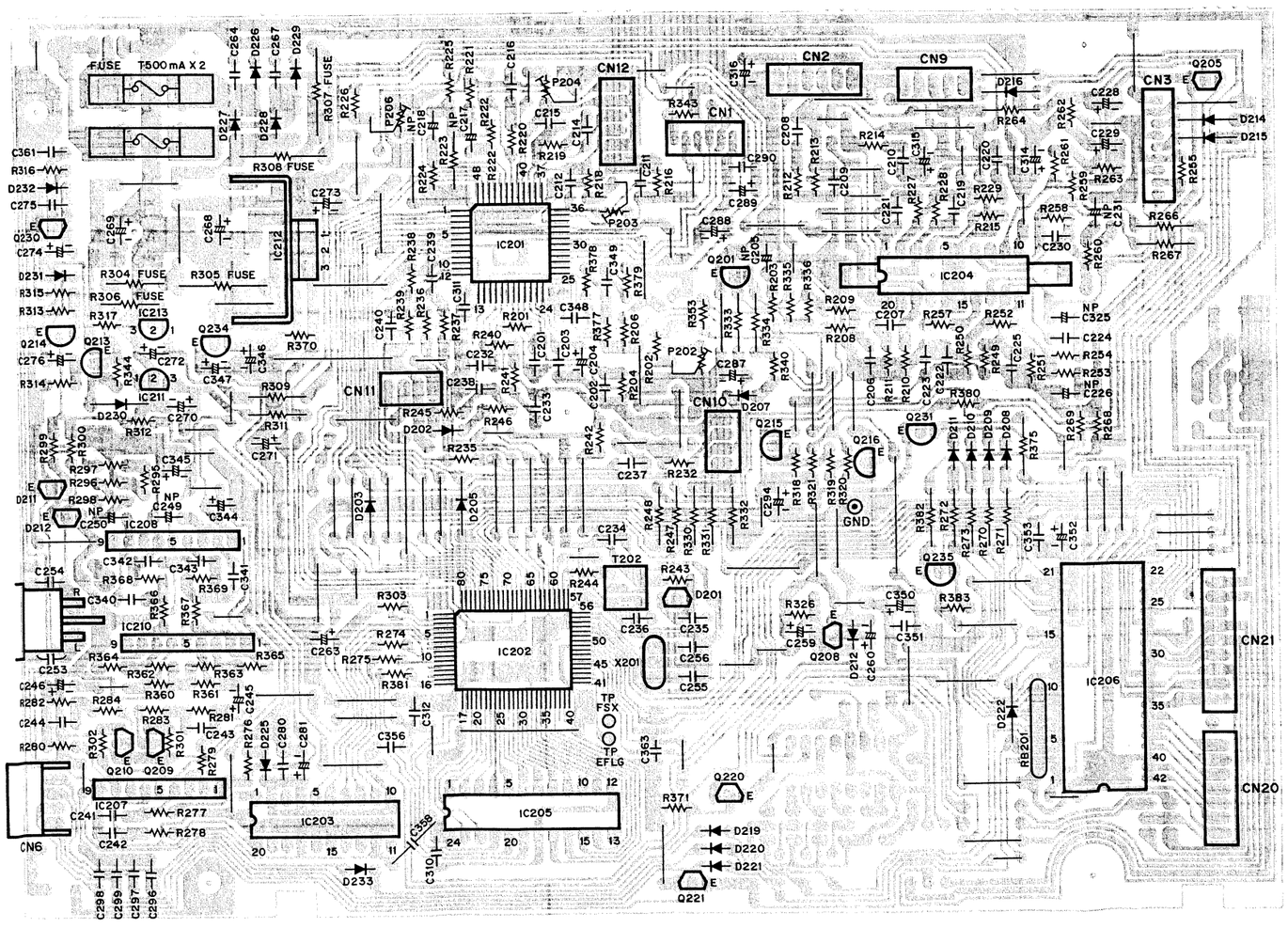
Albertstraße 12, 1000 Berlin 62
Tel. 781 20 ... Fax 782 06 87

CONTROL PRINTED CIRCUIT BOARD
(BOTTOM VIEW)



MAIN PRINTED CIRCUIT BOARD
(BOTTOM VIEW)



IC PIN NUMBERS DC VOLTAGES

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
IC201	LA9200NM	0V	0V	0.2V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	4.8V	4.3V	4.1V	4.1V	4.1V	-5.6V	2.1V	4.9V	2.5V	2.3V	2.3V
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
		0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0.2V	-0.1V	0V	3.8V	0V	5.8V	0V	0V	-5.6V	0V	0V	0V	0V	0V

IC PIN NUMBERS DC VOLTAGES

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
IC202	LC7860	0V	2.4V	2.4V	2.4V	0V	2.4V	0.8V	2.5V	0V	4.9V	0V	0.2V	0V	0V	0V	4.1V	4.1V	2.2V	4.8V	4.8V	0V	0V	0V	0V
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
		0V	4.9V	0V	0V	0.9V	2.4V	4.9V	0V	0.9V	0V	0V	0V	0V	0V	0V	2.3V	3.4V	4.3V	2.3V	2.3V	2.3V	2.2V	2.3V	2.2V
		49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
		1.5V	1.5V	1.5V	1.5V	1.3V	1.3V	1.3V	0V	3.5V	3.5V	3.5V	1.6V	3.6V	0V	0V	0V	0.1V	0V	0.2V	0.3V	2.4V	0V	0V	4.9V
		73	74	75	76	77	78	79	80																
		4.9V	0V	4.9V	4.9V	0V	0V	2.3V	2.3V																

IC PIN NUMBERS DC VOLTAGES

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
IC206	LC6520H	2.2V	0V	4.9V	4.9V	4.9V	4.9V	0V	0V	0V	0V	4.1V	2.8V	4.9V	3.2V	4.9V	0V	4.8V	0V	0V	0V	2.3V	1.3V	4.9V	0V
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42						
		0V	4.9V	0V	3.7V	3.7V	3.7V	3.7V	4.9V	4.9V	4.9V	3.8V	1.8V	2.1V	2.1V	2.2V	4.9V	1.8V	1.8V						

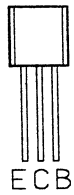
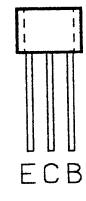
IC PIN NUMBERS DC VOLTAGES

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
IC203	LC7880	2.5V	5.0V	0V	5.0V	0.9V	2.4V	0.9V	0V	2.3V	5.0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	2.5V				
IC204	FA5205P	0V	0V	0V	-13.2V	-13.2V	-13.2V	0V	0V	0V	12.5V	0V	0V	0V	-13.2V	-13.2V	-13.2V	0V	0V	0V	12.5V				
IC205	LC35178S	2.3V	2.2V	2.3V	2.2V	1.5V	1.5V	1.5V	1.5V	1.3V	1.3V	1.3V	0V	3.5V	3.5V	3.5V	1.6V	3.6V	0V	2.3V	3.4V	4.3V	2.3V	2.3V	4.9V
IC207	uPC4570HA	5.9V	2.5V	2.5V	2.5V	-5.9V	2.5V	2.5V	2.5V																
IC208	uPC4570HA	5.9V	0V	0V	0V	-5.9V	0V	0V	0V																
IC210	uPC4570HA	5.9V	0V	0V	0V	-5.9V	0V	0V	0V																
IC211	TA78L006P	12.4V	5.9V	0V																					
IC212	L78M05	12.4V	4.9V	0V																					
IC213	TA79L006P	-13.0V	-5.9V	0V																					

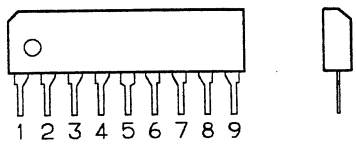
TRANSISTOR DC VOLTAGES

SYMBOL No.	DEVICE	B	C	E
Q201	2SC536	0.5V	0V	0V
Q205	2SD1012	0.6V	0V	0V
Q208	2SC3400	0V	4.9V	0V
Q209	2SD1012	0V	2.4V	0V
Q210	2SD1012	0V	2.4V	0V
Q211	2SD1012	0.6V	0V	0V
Q212	2SD1012	0.6V	0V	0V
Q213	2SC536	7.5V	12.4V	6.8V
Q214	2SA608	5.6V	6.2V	6.2V
Q215	2SA608	4.6V	0.3V	4.9V
Q216	2SA608	4.1V	0V	4.6V
Q220	2SC3860	3.2V	0V	0V
Q221	2SC3860	4.9V	4.5V	4.9V
Q230	2SC3400	0V	0V	2.0V
Q231	2SA608	4.2V	4.9V	4.9V
Q234	2SD734	4.9V	12.4V	4.3V
Q235	2SC536	0.6V	0V	0V

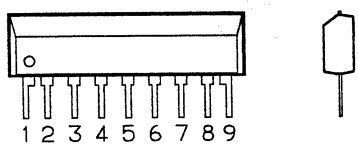
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW	TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA608 2SC536 2SD734			2SC3400 2SC3860 2SD1012		
TERMINAL NAME					
B → BASE C → COLLECTOR E → EMITTER					

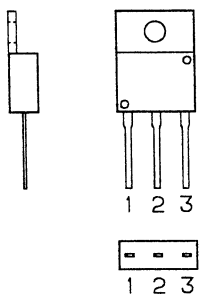
LA6458SS FRONT/SIDE VIEWS
LA6462S FRONT/SIDE VIEWS



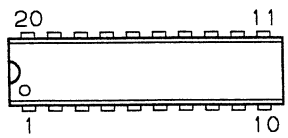
UPC4570HA FRONT/SIDE VIEWS



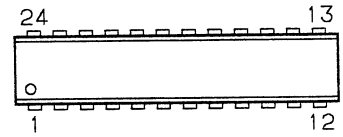
L78M05 TOP/SIDE VIEWS



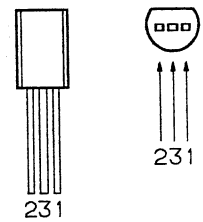
FA5205P TOP VIEW
LC7880 TOP VIEW



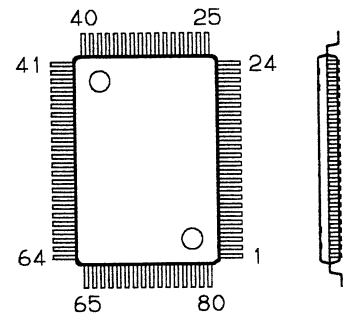
LC3517BS-15 TOP VIEW



TA78L006AP TOP/SIDE VIEWS
TA79L006P TOP/SIDE VIEWS



LC7860N TOP/SIDE VIEWS



LA9200NM TOP/SIDE VIEWS